

ADDENDA

MACKEREL SHARK (*Isurus punctatus* Storer), p. 36, and PORBEAGLE (*Isurus nasus* Bonaterre), p. 36

The *Halcyon* recently caught, on Platts Bank, a mackerel shark indistinguishable from *Isurus punctatus* except that its teeth were denticulate like those of the European *I. nasus* instead of smooth, as Garman (1913) describes and figures them for *I. punctatus*. In the face of this capture, it is no longer possible to maintain a North American smooth-toothed species as contrasted with a north European with denticulate teeth (p. 36). Either the two intergrade, in which case the common mackerel shark of our waters must be known as *I. nasus*, or, if they are actually distinct, both of them occur in the Gulf of Maine. W. C. Schroeder is now engaged on a revision of the mackerel sharks of this genus, but for the time being the question must be left open.

SPINY DOGFISH (*Squalus acanthias* Linnæus), p. 44

Jensen ("The Selachians of Greenland," in *Mindeskript for Jepetus Steenstrup*, 1914, p. 7) lists several definite records of this species from west Greenland, where, however, it appears only as a stray from the south. We find no record of it on the American coast north of the Straits of Belle Isle.

BLACK DOGFISH (*Centroscyllium fabricii* Reinhardt), p. 52

Jensen ("The Selachians of Greenland," in *Mindeskript for Jepetus Steenstrup*, 1914, p. 4) lists several specimens from Davis Straits and from west Greenland, where it seems rather common. He also reports cephalopods, crustaceans, and Medusæ from their stomachs, and remarks that the shark is viviparous, having been taken gravid in February with embryos 124 millimeters long.

GREENLAND SHARK (*Somniosus microcephalus* Bloch and Schneider), p. 53

Jensen ("The Selachians of Greenland," in *Mindeskript for Jepetus Steenstrup*, 1914, p. 8) gives an interesting account of the habits of this shark in west Greenland waters, and of the local shark fishery.

SHAD (*Alosa sapidissima* Wilson), p. 113

Dr. A. H. Leim's report on his studies on the shad of the Bay of Fundy, carried out under the auspices of the Biological Board of Canada (*Contributions to Canadian Biology*, new series, 1924, vol. 2, part 1, pp. 163-184) contains much important information on the life history of the species. Received too late for discussion in

our account of the shad (p. 113), we give here a brief summary of his more important conclusions, based partly on observational and partly on experimental data.

Spawning in the Shubenacadie River takes place chiefly in temperatures higher than 12° C. (53.6° F.), and is temporarily interrupted if the temperature falls lower. At 11 to 15° C. hatching takes place in 8 to 12 days, with the yolk sac absorbed in 4 to 7 days. Normal development of the eggs did not take place in water colder than 7°.

Leim's most interesting discovery is that larval development is more successful in slightly saline water than in fresh, with about 7.5 per mille as the optimum salinity. Notes are also given on the rate of growth of the larvæ, and on their food, as well as of the food of the maturing shad in the Bay of Fundy, which consisted chiefly of copepods and mysid shrimps.

Scale studies indicated a length of 10 to 14 centimeters at the end of the first growing season, and of 20 to 25 centimeters at the end of the second, with the fish maturing from four years of age on.

Leim believes that the shad of the rivers tributary to the Bay of Fundy remain for the most part within the latter while in salt water.

GENUS MYCTOPHUM, p. 149

Goode and Bean's (1896, p. 511) report of the capture of *Myctophum affine* Lütken (as *M. opalinum*) over the southeast slope of Browns Bank (lat. 42° 20' N., long. 65° 07' W.) at 104 fathoms brings this genus within the geographic limits of the Gulf of Maine.

Myctophum resembles its near relative, the lanternfish (p. 149), in its general appearance, having one short, soft-rayed dorsal fin, an adipose fin behind the latter, a forked tail fin, the anal fin mostly or wholly behind the dorsal, large eyes, a wide, very oblique mouth gaping back at least as far as the hinder margin of the eye, and numerous phosphorescent organs on the sides. The longer snout and smaller mouth of *Myctophum*, with the fact that the luminous organs on the snout are in the form of small dots instead of a large patch covering the entire tip of the snout, distinguish *Myctophum* from *Æthoprora* (p. 149).

Many species of *Myctophum* have been described, all of small size, most of them (perhaps all) dark colored and all living pelagic in the mid-depths of the oceanic basins, where they are among the commonest of fishes, chiefly below 150 fathoms.

The arrangement of the phosphorescent organs or spots affords the most useful distinction within the genus, under which Brauer (*Die Tiefsee-Fische. Wissenschaftliche Ergebnisse der Deutschen Tiefsee-Expedition, 1898-99* (1906), Band XV, Teil I, p. 150) lists 20 odd from the North Atlantic north of 10° N. lat., any one of which might stray within the 150-meter contour abreast the Gulf of Maine. However, only one has actually been taken within the limits of the gulf (noted above), though others have been taken further out over the continental slope, and since none of them has any real place in the Gulf of Maine fauna it seems needless to burden this report with descriptions of them. Should one be picked up, we refer its captor to Brauer (*loc. cit.*), or suggest that the specimens be submitted to the United States Bureau of Fisheries for identification.

SAND LAUNCE (*Ammodytes americanus* DeKay), p. 183

During December, January, and February of 1924–1925 the *Fish Hawk* towed numbers of larval launce (identified by Mrs. C. J. Fish and R. A. Goffin of the Bureau of Fisheries) near Provincetown and in Cape Cod Bay, evidence both that this general region (when adults are abundant) is the site of considerable reproduction and that spawning commences as early as November in this part of the Gulf of Maine.

SWORDFISH (*Xiphias gladius* Linnæus), p. 221

A swordfish caught in the summer of 1921 by Capt. Irving King and landed at the Boston Fish Pier weighed 915 pounds dressed—hence upwards of 1,000 pounds alive (*Fishing Gazette* for September, 1921, p. 13). This is the heaviest swordfish definitely recorded from the Gulf of Maine. The specimen was not measured, but the sword being more than 5 feet, the total length of the fish must have approximated 15 feet.

PILOTFISH (*Naucrates ductor* Linnæus), p. 229

We saw a pilotfish about a foot long, freshly taken from a mackerel net, in Provincetown Harbor, August, 1924, this being the third definite record for this species in the Gulf of Maine.

TAUTOG (*Tautoga onitis* Linnæus), p. 286

In August, 1924, we saw a number of small tautog seined on the sand beaches around Provincetown Harbor, proving that they frequent sand bottom to some extent north as well as south of Cape Cod.

BLUEMOUTH (*Helicolenus dactylopterus*, De la Roche)

This scorpenid, common in deep water in the Mediterranean, off Portugal, and off Norway, has been reported by Goode and Bean (1896, p. 523) at four stations along the continental edge abreast the Gulf of Maine and off southern New England, between longitudes 69° 42' and 71° 02' W., in depths of 156 to 202 fathoms.

It is very closely allied to *Helicolenus maderensis* (p. 313), which it so closely resembles in general appearance, arrangement and forms of the fins, and in color, that the description given above (p. 313) would apply equally to the bluemouth. The cheek spines of the latter and the spines on the top of the head, however, are described as much less prominent. Furthermore, according to available accounts and illustrations (we have not seen either species), the black-bellied rosefish (*Helicolenus maderensis*) has two conspicuous spines upon the upper part of the opercular flap, which are either very small or lacking in the bluemouth (*H. dactylopterus*).

In Goode and Bean's illustration (1896, fig. 244) and Jordan and Evermann's account (1896–1900, p. 1837) of the bluemouth, the tip of the pectoral fin reaches as far back as the origin of the anal, but as it falls considerably short of it in Scandinavian specimens (Smitt, *Scandinavian fishes*, p. 154, fig. 43), Smitt doubts

whether the American form is actually identical with the European, a question on which we have nothing to contribute.

ROCK EEL (*Pholis gunnellus* Linnæus), p. 359

The following observations, communicated by W. C. Schroeder, prove that the rock eel descends deeper in the Gulf of Maine than we had supposed (p. 361): Twelve miles southeast of Round Shoal buoy, Nantucket Shoals; several specimens found in the stomachs of cod in 15 fathoms; also one, eaten alive, from the mouth of a pollock caught at 34 fathoms on Platts Bank, July 28, 1924.

AMERICAN POLLOCK (*Pollachius virens* Linnæus), p. 396

The following measurements by W. C. Schroeder show that under favorable conditions pollock may be considerably heavier at corresponding lengths than those listed on page 397:

Fish caught on Rose and Crown Shoals off Nantucket, August 16, 1923.

Length, inches	Weight, pounds
27 $\frac{3}{4}$ -----	9
29 $\frac{1}{2}$ -----	11 $\frac{1}{2}$
35-----	21
41 $\frac{1}{4}$ -----	35 $\frac{1}{2}$

Capture by the *Fish Hawk* of considerable numbers of larval pollock in the tow net during December and January, 1924-25, off the western and southern sides of Stellwagen Bank proves that this important spawning ground is a favorable nursery for the young fish (p. 405).